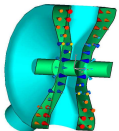


FABRICATION OF THE AAA $\beta=0.175$ SPOKE RESONATOR

**Dale Schrage
LANL**

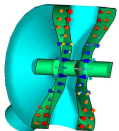
**Workshop on the Advanced
Design of Spoke Resonators**

**Los Alamos, NM, USA
October 7 and 8, 2002**



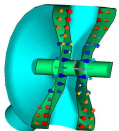
CAVITY PROCUREMENT

- **Cost Competitive Procurement**
- **Wrote SOW & Procurement Package**
- **Solicited “interest” from**
 - **4 US Vendors - one interested**
 - **3 European Vendors - three interested**
 - **3 Japanese Vendors - none interested**
- **Awarded to Lowest Bidder**



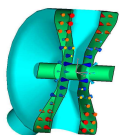
PROCUREMENT PERSONNEL

- **Cavity Statement of Work: Richard LaFave**
- **Cavity Procurement Agent: Frank Targhetta**
- **Liaison Support & Collaboration: INFN/Milano**
 - Danilo Barni
 - Angelo Bosotti
 - Carlo Pagani
- **Vendor: E. Zanon, S.p.A**
 - Project Engineer: Giorgio Corniani
 - Lead Technician: Mauro Festa



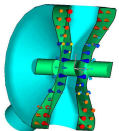
SCHEDULE

TASK	START DATE	COMPLETE DATE
ADTF LINAC REVIEW	4/10/01	4/12/01
CAVITY PHYSICS DESIGN	4/15/01	6/15/01
POWER COUPLER CONCEPT	4/15/01	6/15/01
CAVITY STRUCTURAL DESIGN	5/15/01	6/15/01
PROCUREMENT DOCUMENTS	5/15/01	7/1/01
BID PERIOD	7/11/01	8/3/01
AWARD	8/3/01	8/29/01
CAVITY FABRICATION	9/1/01	7/11/02



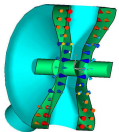
FABRICATION OF SPOKE

- **TWO OPTIONS:**
- **OPTION A: STAMP HALVES AND SEAMWELD**
 - **STRAIGHTFORWARD FORMING OPERATION**
- **OPTION B: FORM FROM TUBE**
 - **SOME PROTOTYPING REQUIRED**
- **VENDOR OPTION, CHOSE OPTION B**

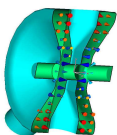
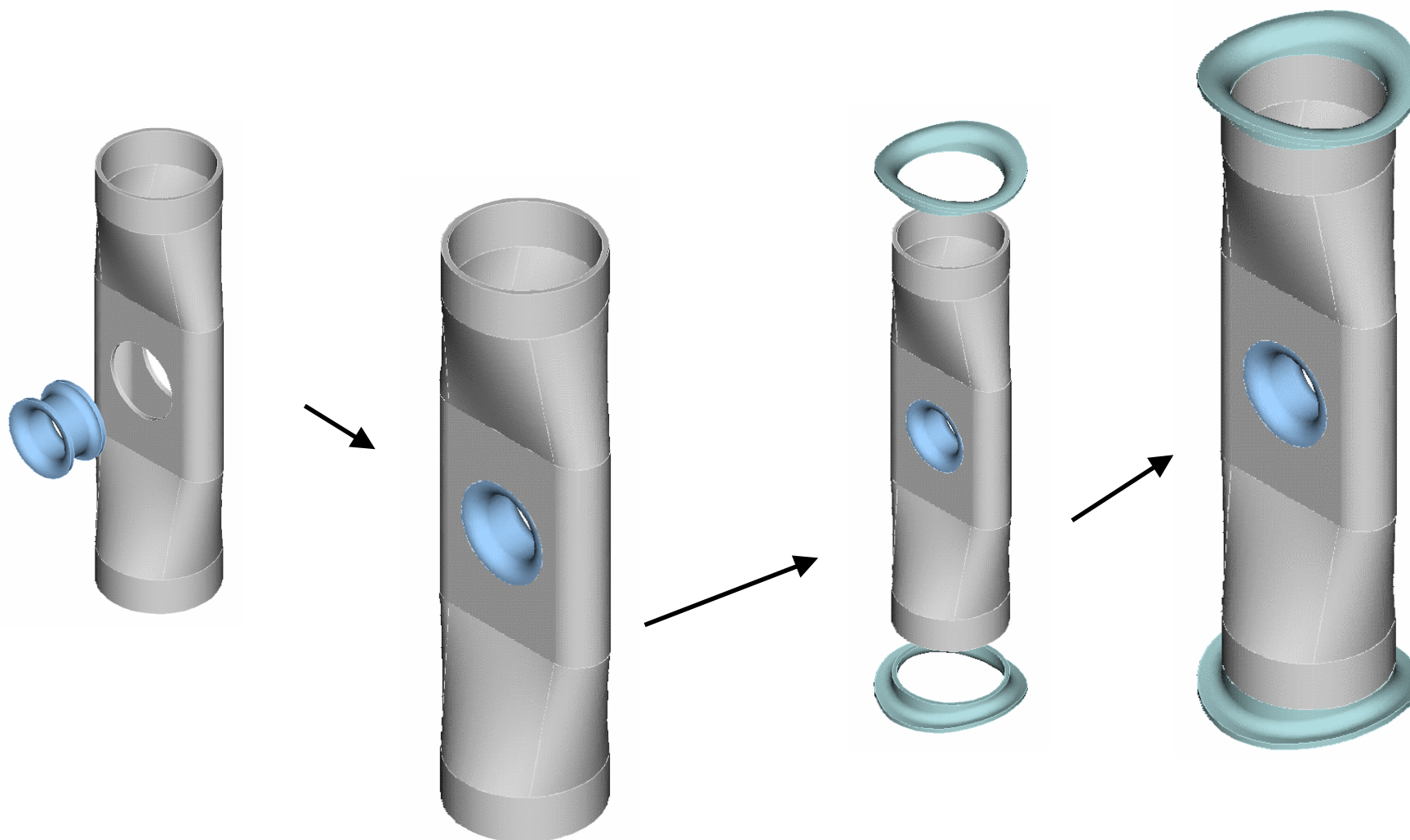


SPOKE/CAVITY JOINT

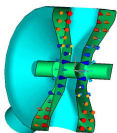
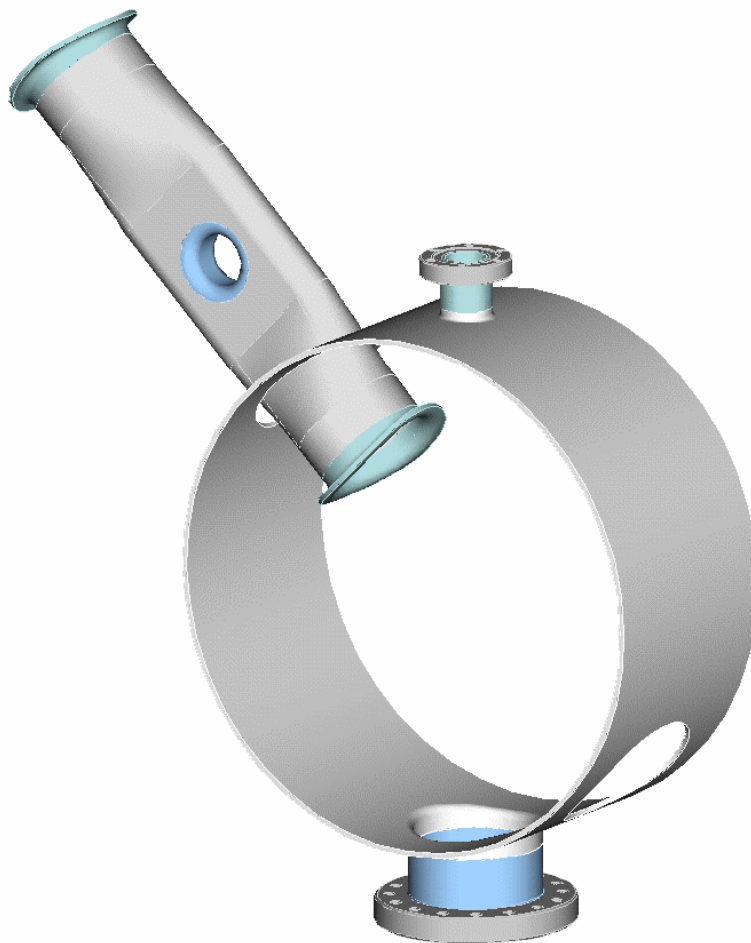
- **TWO OPTIONS:**
- **OPTION A: STRAIGHT JOINT**
 - SIMPLER TOOLING
 - MAY BE DIFFICULT FOR > 1 SPOKE
 - AAA $\beta = 0.175$, ANL $\beta = 0.29$ & 0.40 , 2-GAP
- **OPTION B: FLARED JOINT**
 - EASIER INSERTION
 - MORE COMPLEX TOOLING
 - ANL/RIA $\beta = 0.34$, 3-GAP
- **VENDOR OPTION, CHOSE OPTION A**



OPTION B (Courtesy of AES)



OPTION B (Courtesy of AES)



THINGS TO DO DIFFERENTLY

PROVIDE NIOBIUM	WE DID
VISIT FREQUENTLY	INFN DID
PROVIDE FLANGES	NEXT TIME
PROVIDE FASTENERS & TOOLS	NEXT TIME
UNIFORM THICKNESS WELDS	NEXT TIME
SPECIFY CARRIER & TYPE	NEXT TIME

